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# **Weekly Brief**

**11 April 2006**

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***One Team: Relevant, Ready, Responsive, Reliable***

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# Topics



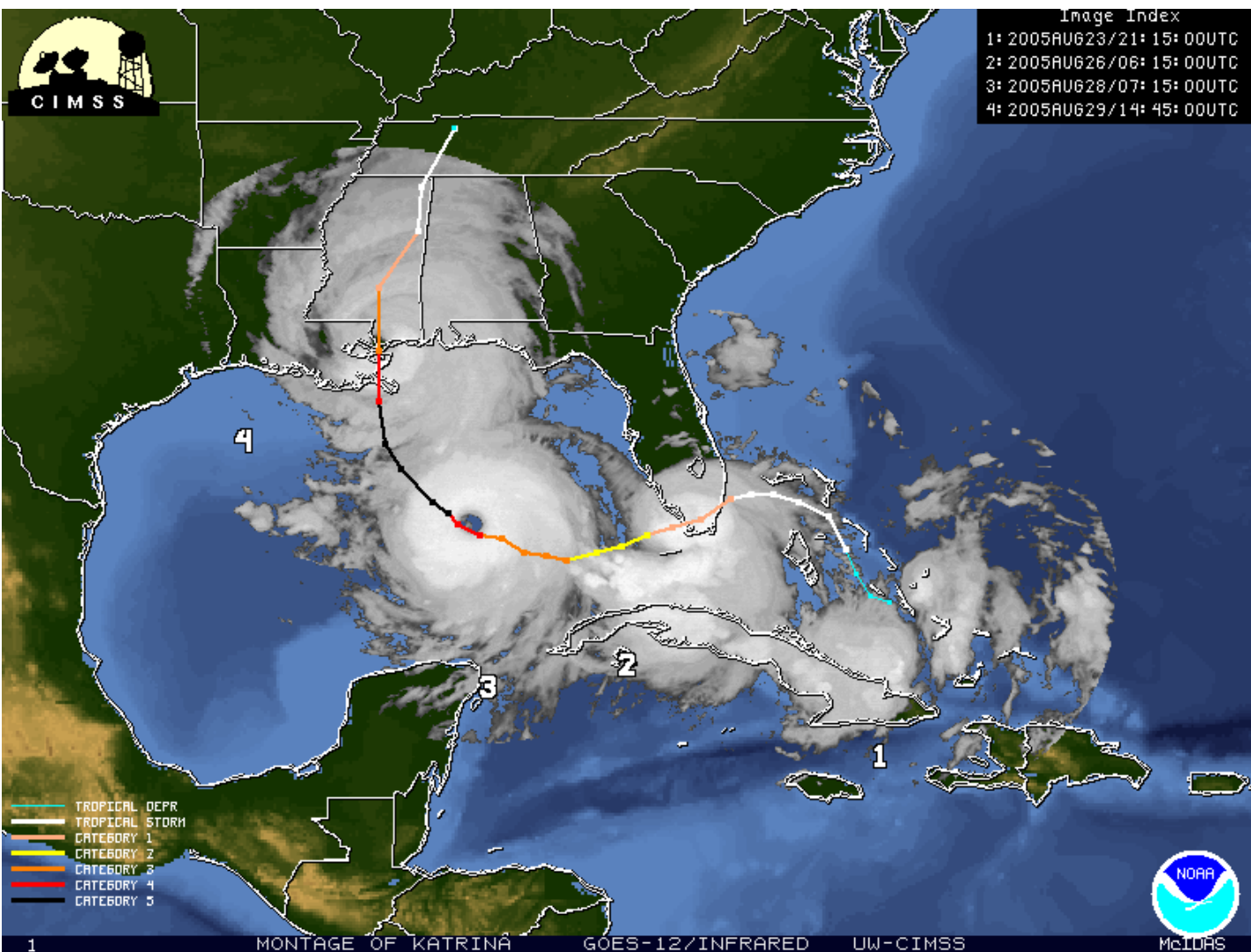
- Hurricane Katrina & Rita
- Corps emergency missions
- Hurricane protection system
- Congressionally authorized levels of hurricane protection
- Hurricane protection system restoration summaries
- New Orleans outfall canals
- Louisiana Coastal Protection and Restoration (LaCPR)
- Additional improvements



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# Hurricane Katrina



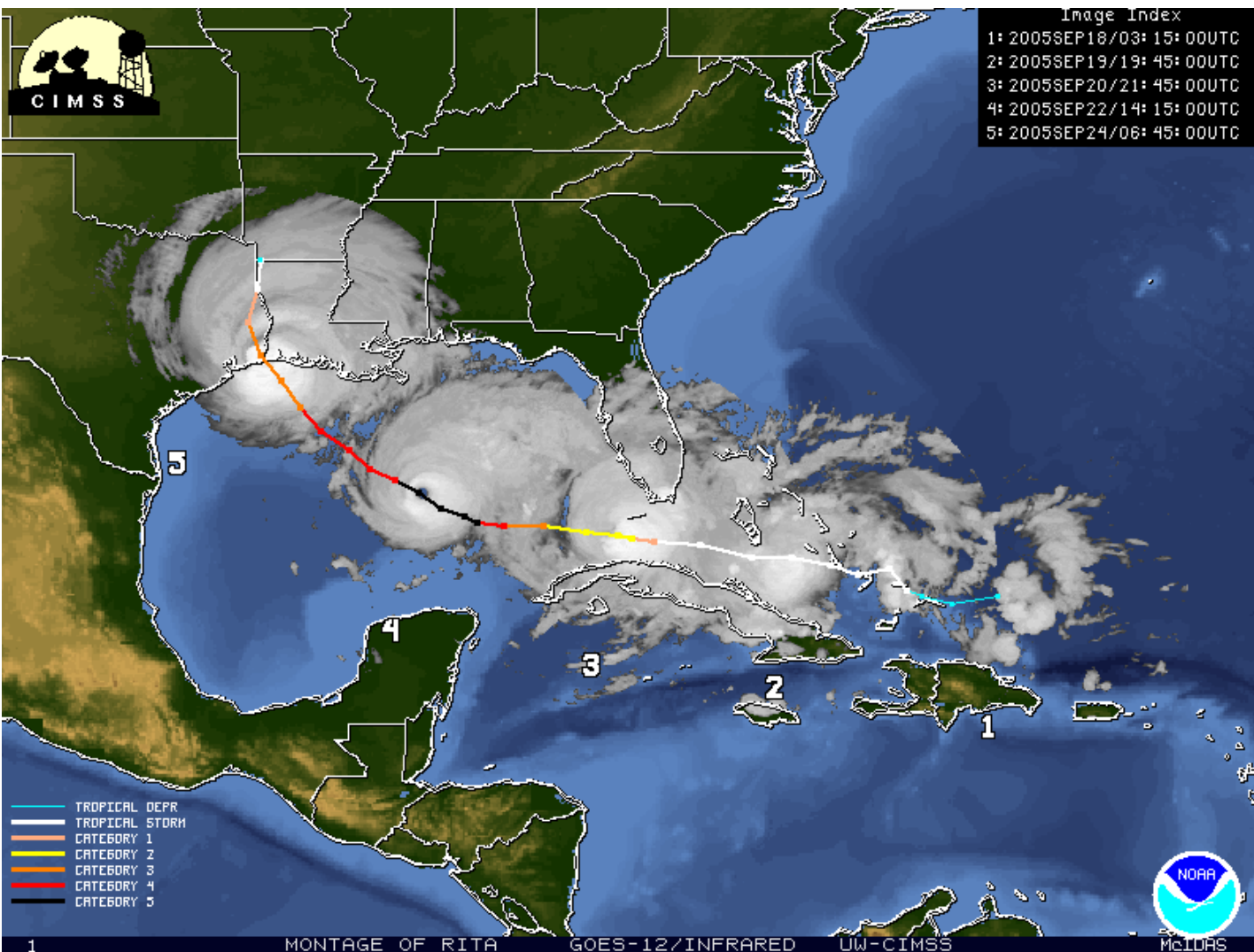
- *One of America's largest natural disasters*
- **Cat 5 strength less than 12 hours before landfall**
- *127 MPH wind at Louisiana landfall*
- **Maximum surge of 28 to 30 feet along Mississippi coast**
- *75 percent of New Orleans flooded*
- **More than 1,300 dead**

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# Hurricane Rita



- ***175 MPH max sustained winds in Gulf of Mexico***
- ***120 MPH max sustained winds at landfall***
- ***Cat 3 strength at landfall***

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# Corps of Engineers Emergency Missions



Task Force Hope Personnel: 2,347 currently assigned

- **Water:** *Completed*
- **Ice:** *Completed*
- **Emergency power:** *299 generators installed*
- **Flood water removal:**
  - *By pumping*
  - *Accomplished in 53 days*
  - *Volume -- more than 732,000 acre-feet (250 billion gallons) removed*
- **Temporary roofing:**
  - *131,210 structures*
  - *100 % complete*
- **Temporary structures**
  - *1,036 total required*
  - *89 % complete*
- **Debris removal**
  - *38.9 million cubic yards removed*
  - *80 % complete*
- **Structural debris removal**
  - *0.7 million cubic yards removed*
  - *5 % complete*

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# Louisiana & Mississippi Debris Missions



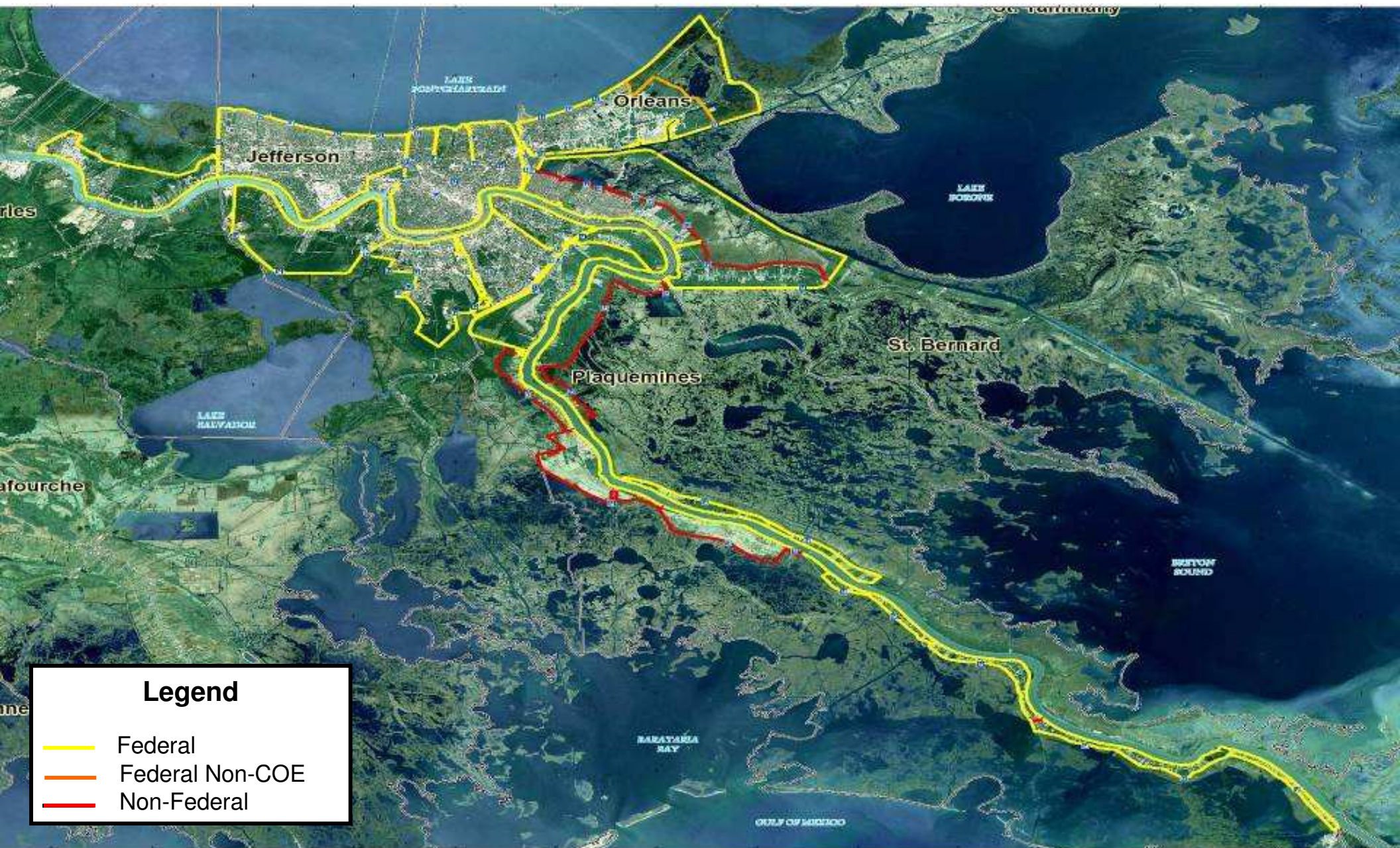
New Orleans



	Louisiana	Mississippi
Debris Removal – Estimated Total	26.4	22.9
Structural Debris Removal – Estimated Total	13.5	1.3
Totals (million cubic yards)	39.9	22.4

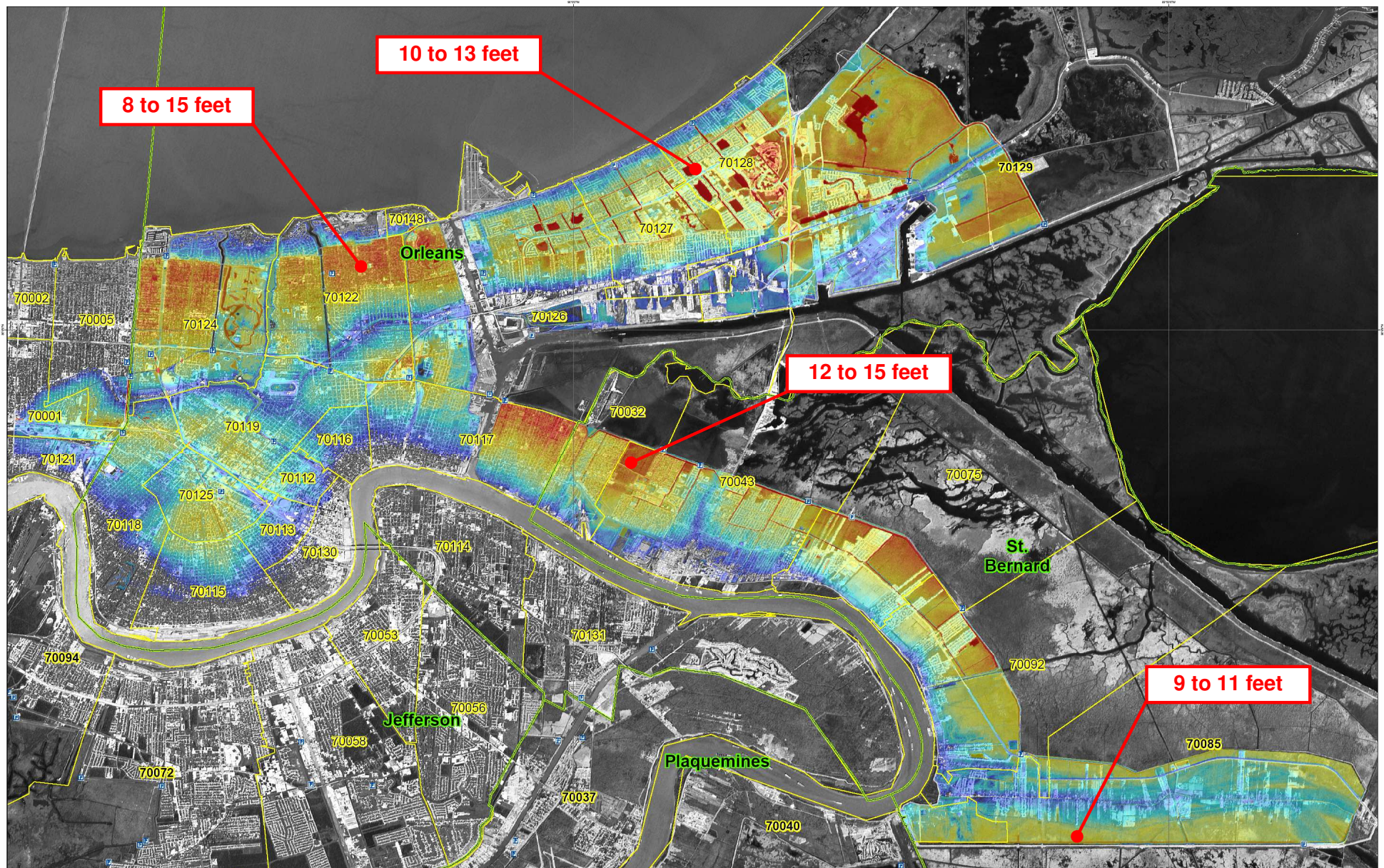
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# New Orleans metropolitan area: Katrina Maximum Flooding Depth



Datum: North American Datum of 1983  
 Spheroid: Geoidetic Reference System 1980  
 Projection: Geographic  
 Background: SPOT Image  
 Revised: 2005-10-10



1:42,000



## Legend

- Pumping Stations
- Zip Code Boundary
- County Line
- Max Flood Depth  
 High : 12 Ft  
 Low : 0 Ft







# Authorized Protection Levels

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## Design Hurricanes

Project Location	Date Authorized	Central Pressure Index	Wind		Forward Speed
			<i>Speed</i>	<i>At Radius of</i>	
Lake Pontchartrain & Vicinity	October 1965	27.6 inches	100 mph	34.5 miles	5.75 – 12.66 mph
Grand Isle & Vicinity	1965 – 1976	28.15 inches	87 mph	35 miles	13 mph
New Orleans to Venice	October 1962	28.1 inches	90 mph	34.5 miles	11 mph
West Bank & Vicinity	1986	27.4 inches	115 mph	34.5 miles	12.6 mph

**Congress currently authorizes protection from flood waters resulting from winds of 90-115 MPH.**

## Saffir-Simpson Scale (1970)

Scale Number	Winds (mph)
1	74 – 95
2	96 -110
3	111 – 130
4	131 – 155
5	155 +

## Katrina at LA Landfall

Category 3
127 mph wind
27.17 inches central pressure
15 mph forward speed
90 miles – extent of hurricane force winds
230 miles – extent of tropical force winds

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# Southeast Louisiana Hurricane Protection



## **CURRENT WORK**

### **• Repair:**

- Return pre-Katrina protection to hurricane-damaged components by 1 June 2006

### **• Restore:**

- Restore undamaged levees/floodwalls to originally authorized heights by 1 Sep 2007

### **• Complete:**

- Accelerated completion of unconstructed portions of authorized projects by Sep 2007

### **• Improve:**

- Make improvements to optimize the performance of the existing system

### **• Higher Levels of Protection:**

- South Louisiana Hurricane Protection and Restoration Report - preliminary report due June 2006, final December 2007

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## New Orleans and Vicinity Hurricane Protection System Emergency Supplemental Funding to Date (\$M)



(Repair, Restore, & Complete)

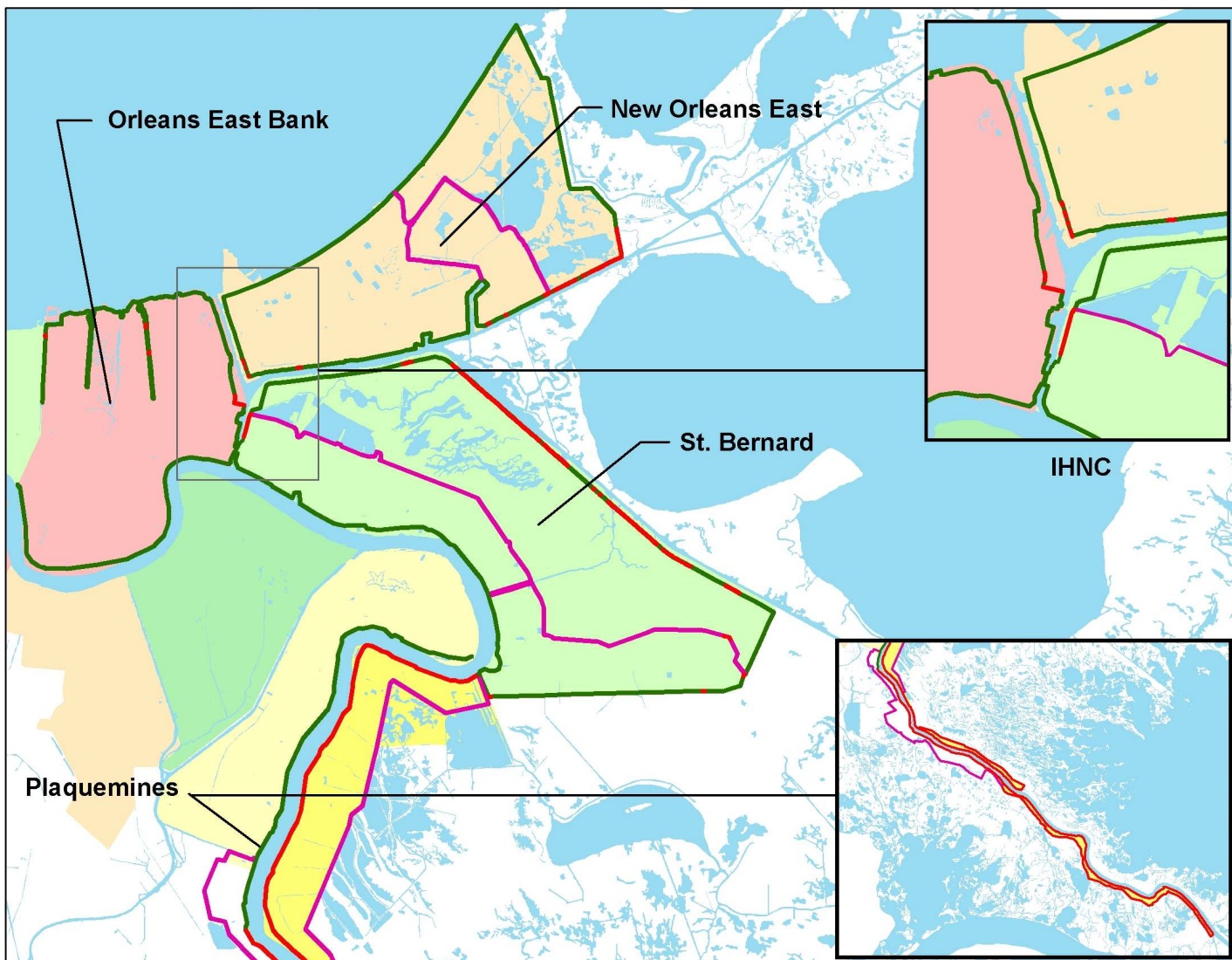
Component	Funded
Repair Existing System and Rebuild to Design Height	\$1,533
<u>Complete Authorized System</u>	
New Orleans to Venice (Hurricane Protection)	\$ 33
West Bank and Vicinity (Hurricane Protection)	\$147
Lake Pontchartrain and Vicinity (Hurricane Protection)	\$120
Southeast Louisiana (Interior Flood Damage Reduction)	\$225
Grand Isle (Hurricane Protection)	\$ 15
Larose to Golden Meadow (Hurricane Protection)	\$ 4
<b>TOTAL</b>	<b>\$2,077 M</b>

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# Hurricane Protection System Restoration Program Summary



## Hurricane Protection System

- 350 miles
- 71 pump stations

## Damage

- 41 miles severe, 128 miles moderate damage
- 34 pump stations were non-operational

## Cost

- \$ 798 million

## Percent of Pre-Katrina Protection Restored

**63 % Complete**

**20 of 59 contracts  
complete**

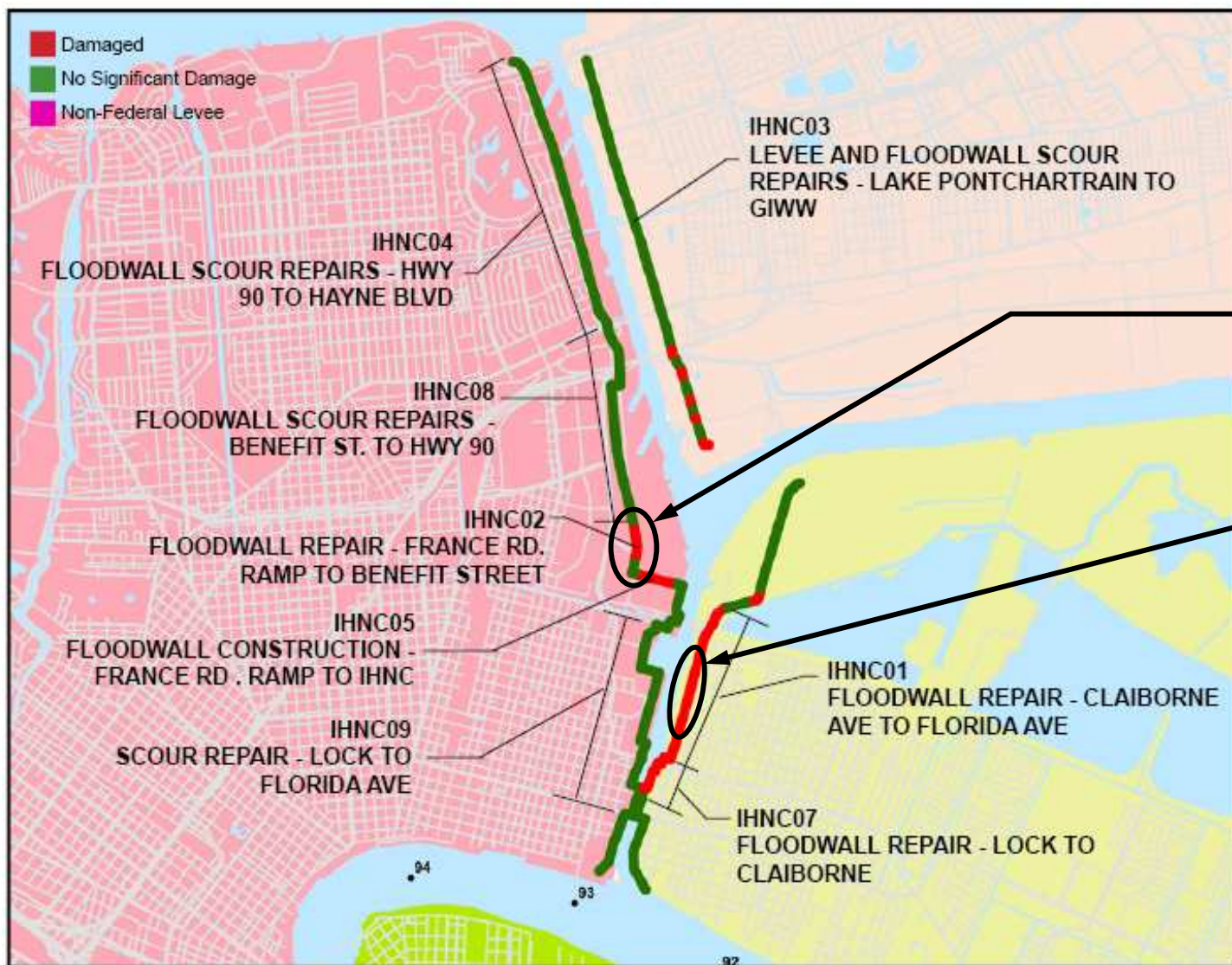
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# Inner Harbor Navigation Canal



**Percent of Pre-Katrina  
Protection Restored**

**79 % Complete**

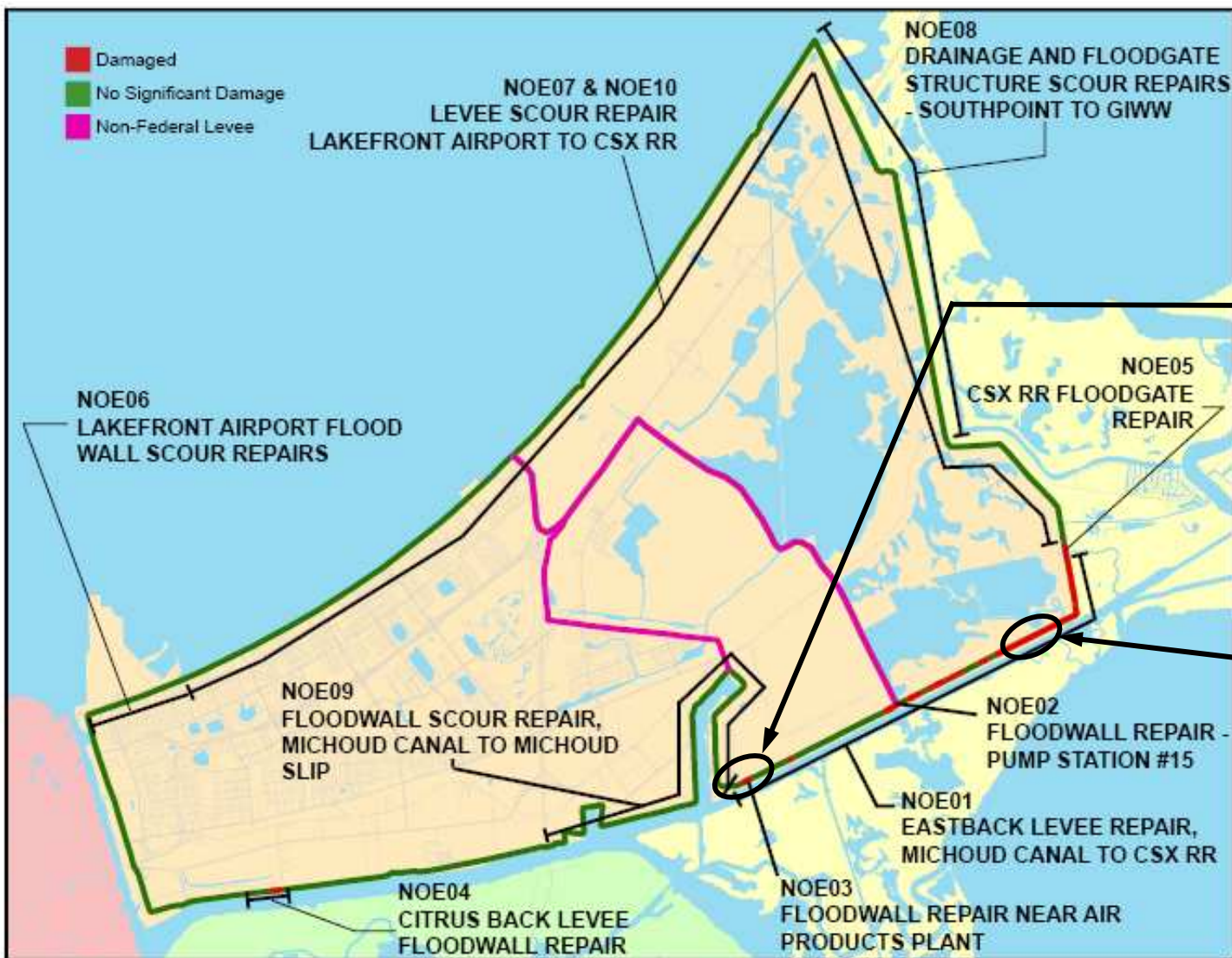
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# New Orleans East



**Percent of Pre-Katrina  
Protection Restored**

**72 % Complete**

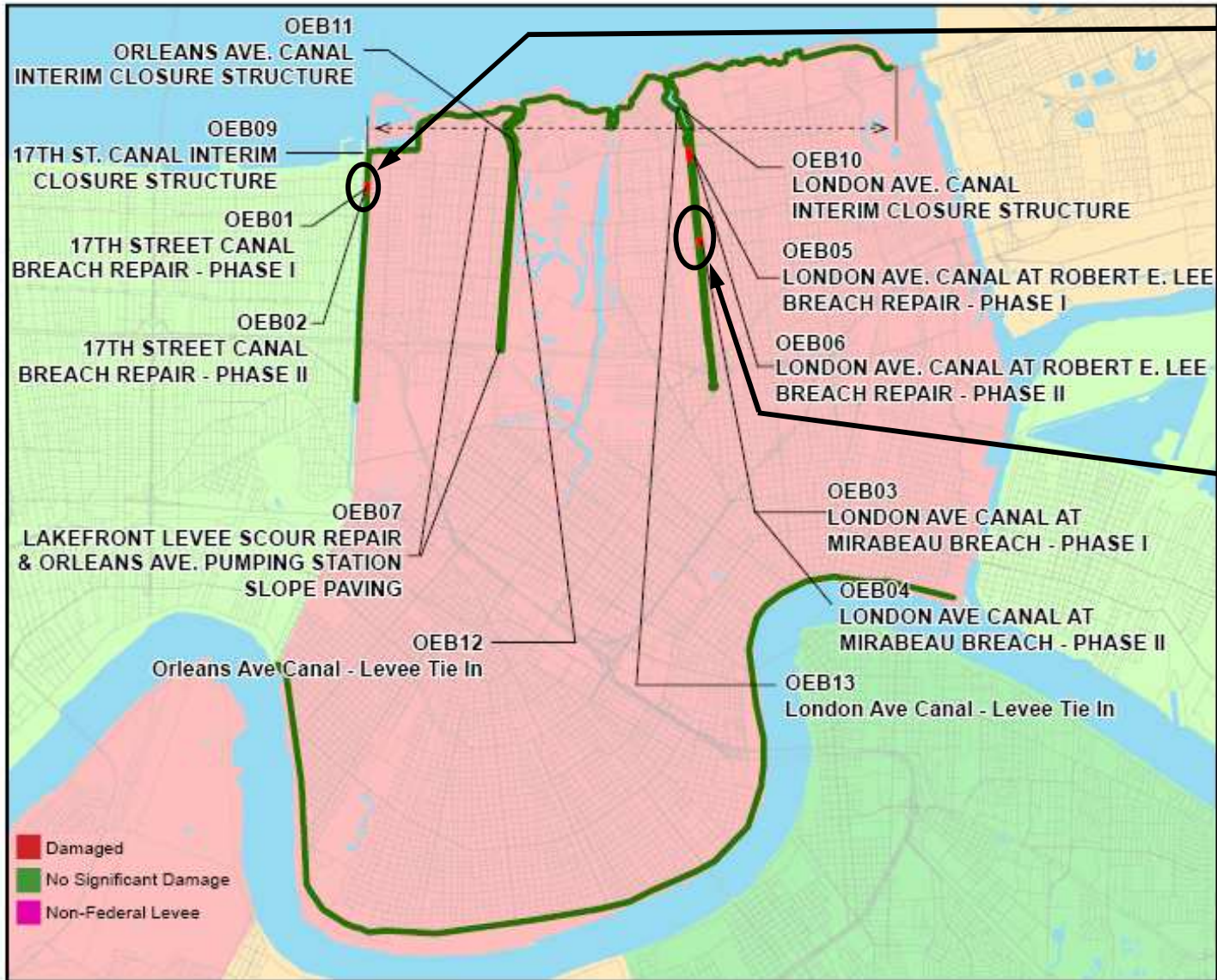
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# Orleans East Bank



**Percent of Pre-Katrina  
Protection Restored**  
**36 % Complete**

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# Outfall Canal Challenge



## Determine best solution to outfall canal issue given:

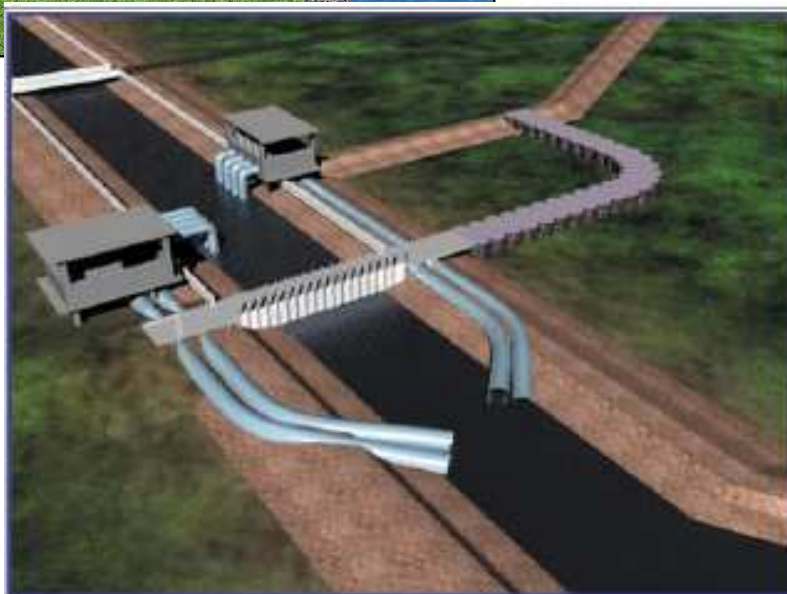
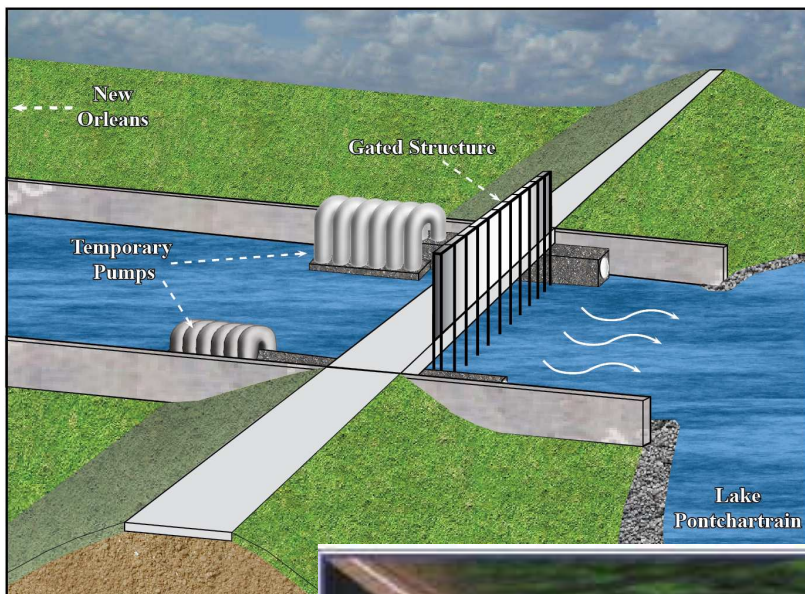
- Canal levee/floodwalls will not perform to design levels without major reconstruction/strengthening.
- Interdependence of hurricane protection system.
- Need to provide public confidence to inspire near-term return.





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# New Orleans Outfall Canal Interim Closure Plan



- Three locations on Lake Pontchartrain
- Provides protection by 1 June 2006
- Provide New Orleans with rainwater drainage
- Prevent storm surge
- Pumps permit drainage while closed

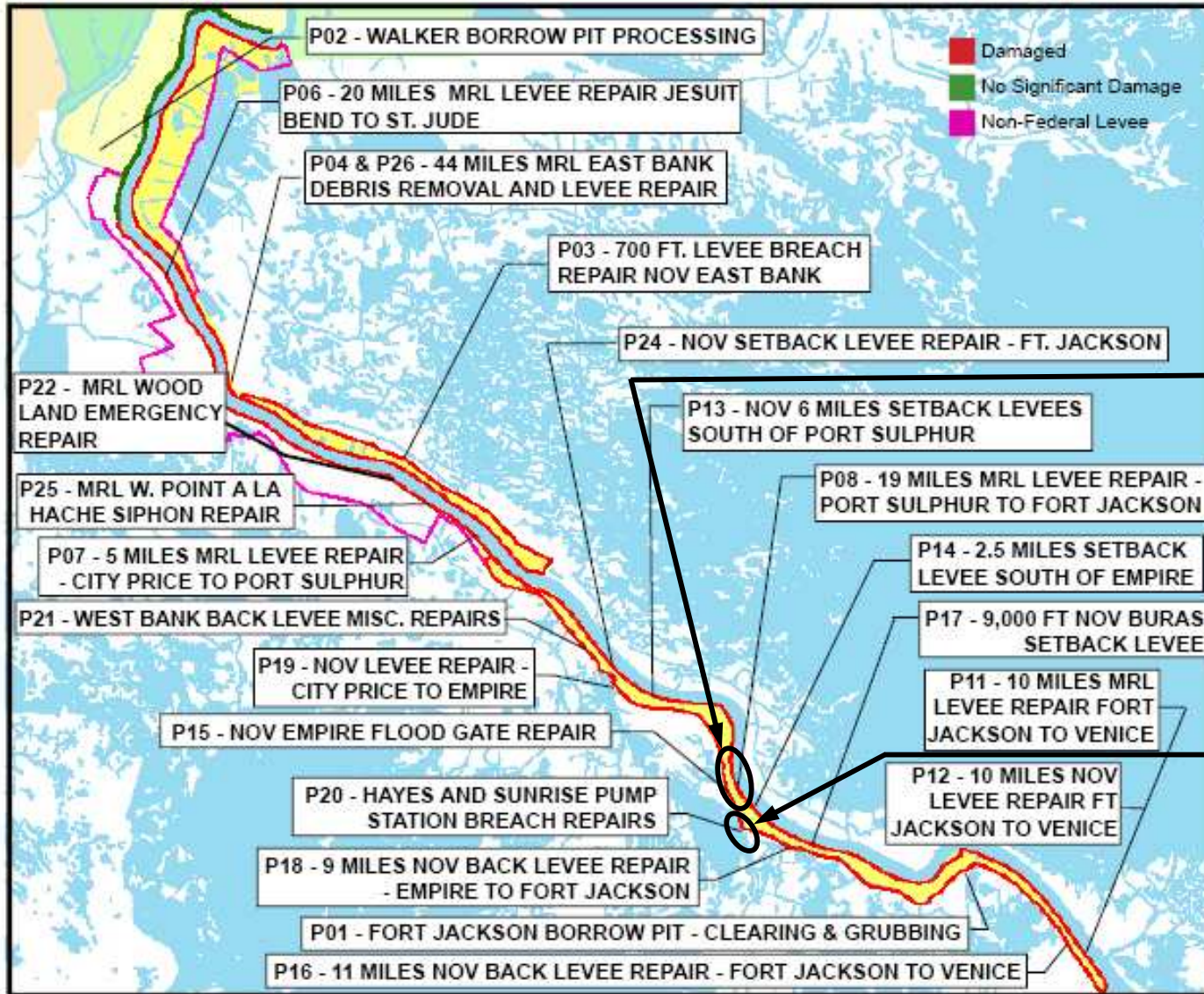
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# Plaquemines Parish



**Percent of Pre-Katrina  
Protection Restored**

**81 % Complete**

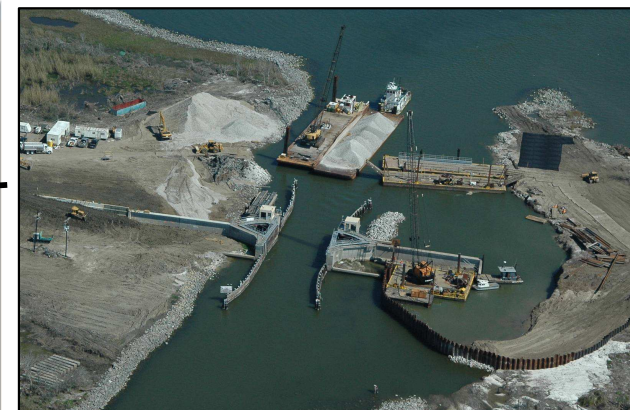
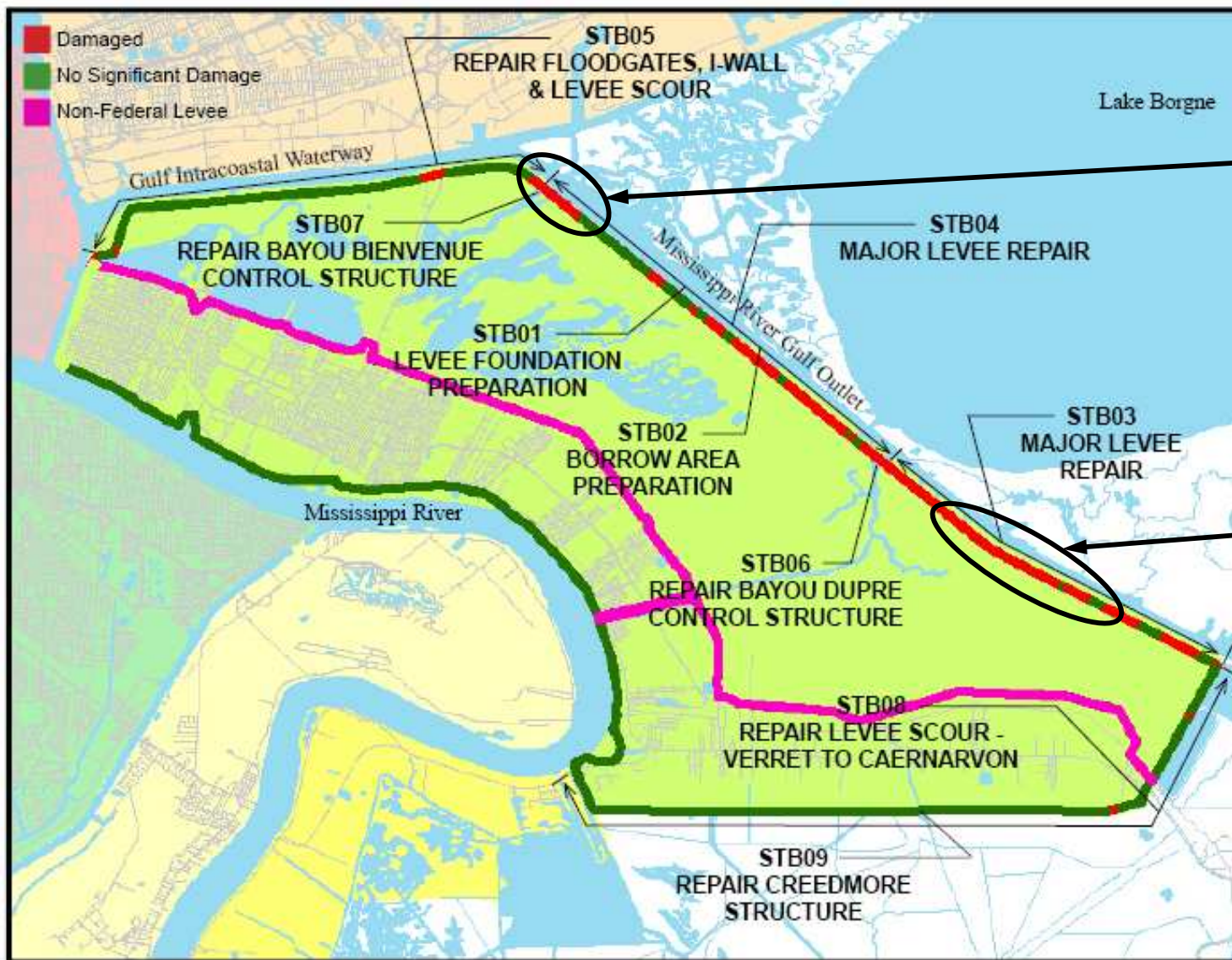
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# Saint Bernard Parish



**Percent of Pre-Katrina  
Protection Restored**  
**81 % Complete**

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# Louisiana Coastal Protection and Restoration (LaCPR)



## Congress directed analysis and design of:

- Category 5 Hurricane Protection
- Full range of measures for flood control, coastal restoration, and hurricane protection
- Preliminary Report to Congress – June 2006
- Final Technical Report – December 2007
- Submit reports on component areas for authorization as practicable



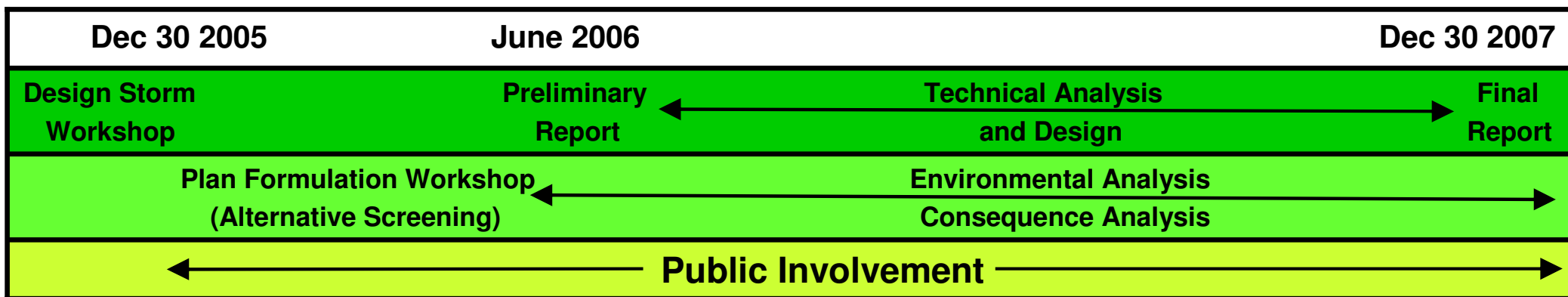


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# Louisiana Coastal Protection and Restoration (LaCPR) - Status



- Partnership with State Coastal Protection and Restoration Authority
- Team formed
- Project Management Plan drafted
- Finalizing HQ guidance
- Frequent broad based public involvement planned



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# Louisiana Coastal Protection and Restoration (LaCPR) - Report



- **Study approach requires innovation**
- **Accelerated schedule**
- **IPET forms basis for analysis and design**
- **Expert Team**
- **Outside and independent review**
- **Extensive public input**





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# Southeast Louisiana Hurricane Protection



## **ADDITIONAL IMPROVEMENTS**

The Bush Administration on Feb. 16 asked Congress to support an additional \$1.46 billion in new funding for improvements to southeast Louisiana's hurricane protection system. If approved, the proposal would pay for:

- **Permanent pumps and closures for New Orleans' three outfall canals. (\$530 million)**
- **Two navigable closures that would prevent hurricane surge from entering the Industrial Canal area. (\$350 million)**
- **Storm-proofing existing interior drainage pump stations in Jefferson and Orleans Parishes. (\$250 million)**
- **Selective armoring for critical portions of the New Orleans levee system. (\$170 million)**
- **Incorporation of Plaquemines Parish west bank, non-federal levees into the federal levee system. (\$60 million)**
- **Restoration of critical areas of coastal wetlands and ecosystems needed to improve long- term hurricane and storm protection. (\$100 million)**

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# Southeast Louisiana Hurricane Protection



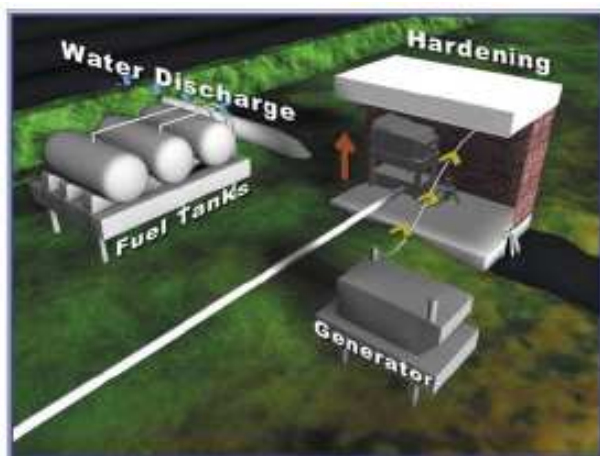
## ADDITIONAL IMPROVEMENTS



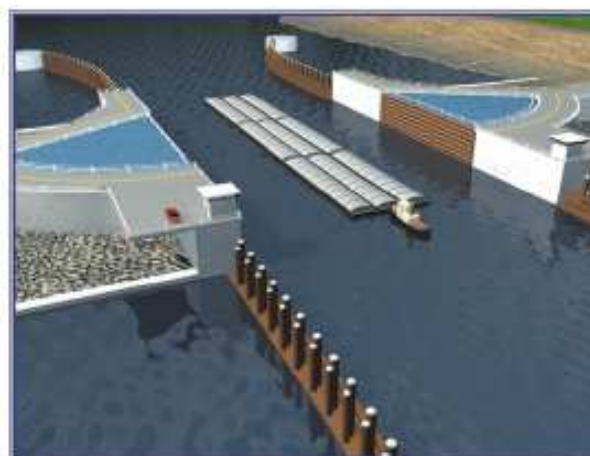
Permanent  
Pumps &  
Closures



Selective  
Armoring



Storm-Proofing  
Pump Stations



Navigable  
Closures

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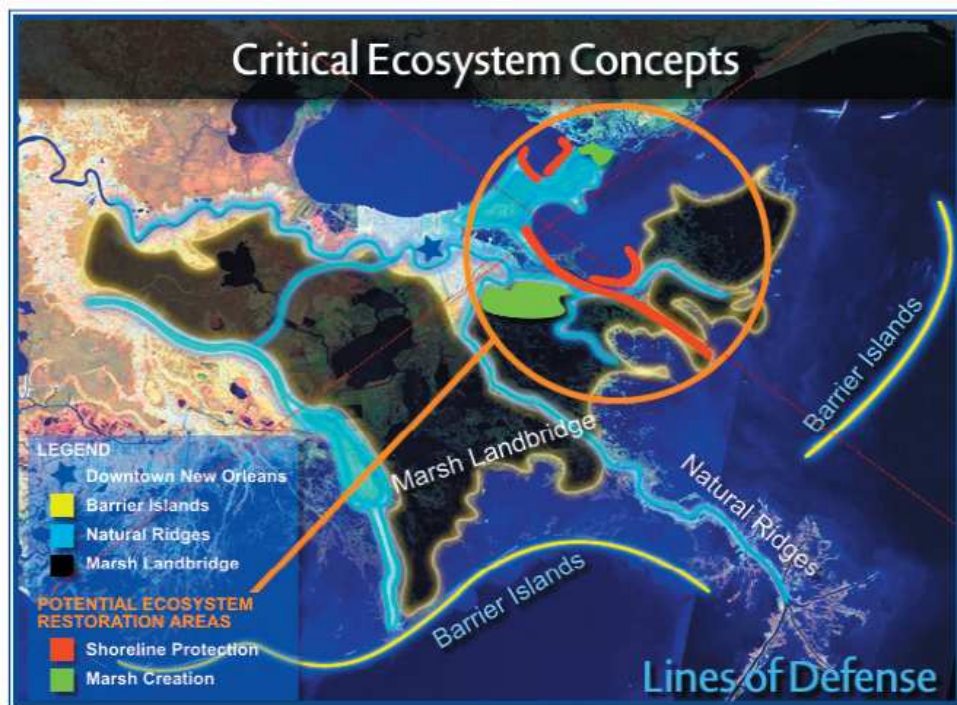


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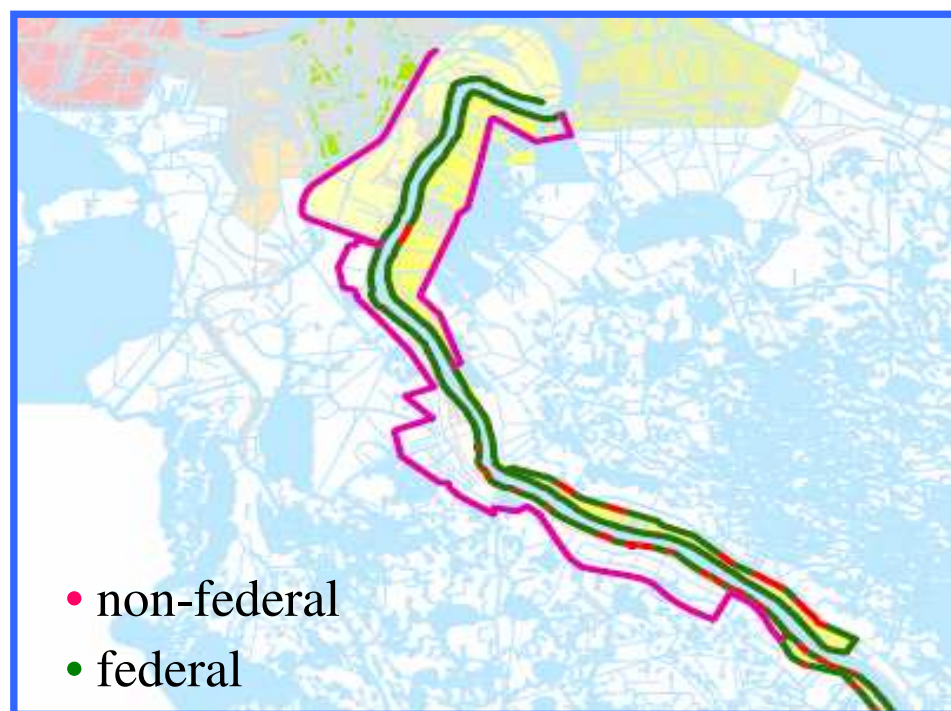
# Southeast Louisiana Hurricane Protection



## ADDITIONAL IMPROVEMENTS



Wetlands and Ecosystem Restoration



Incorporations of non-federal levees in  
Plaquemines

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